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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,295	11/21/2003	Carl Berger	163.1.004	3011

7590 05/11/2006  
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EXAMINER

CLARDY, S

ART UNIT	PAPER NUMBER
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1617

DATE MAILED: 05/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/719,295	<b>Applicant(s)</b> BERGER, CARL	
	<b>Examiner</b> S. Mark Clardy	<b>Art Unit</b> 1617	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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Claims 1-5 are pending in this application.

Applicant's claims are drawn to a method of reducing the nicotine content of a tobacco plant by application of an agent<sup>1</sup> which inhibits biosynthesis of nicotine. Applicant has defined the term "tobacco plant" as meaning "the entire plant as well as portions thereof suitable for making tobacco products, such as for example, tobacco leaves" (p. 7, lines 16-18).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 are rejected under 35 U.S.C. 102(a) and (b) as being clearly anticipated by Musser et al<sup>2</sup>.

Musser et al teach that caterpillar saliva reduces the amount of toxic nicotine released by the tobacco plant (column 1), and that both glucose oxidase and hydrogen peroxide exhibit the same effect (column 3).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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<sup>1</sup> Claim 3: gluconic acid, hydrogen peroxide, or glucose oxidase (which may be produced by a herbivore)

<sup>2</sup> Musser et al. "Caterpillar saliva beats plant defences". *Nature*. 416:599-600. 11 April 2002.

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Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosen (US 3,851,653), OR the combined teachings of Murray et al (US 6,054,318) and Felton et al (US 6,303,326).

Rosen, again, teaches the utility of treating tobacco with hydrogen peroxide to reduce the nicotine content. While the patent does not appear to address application to unharvested plants, it would be obvious to the ordinary artisan that such an application would be merely an adaptation of the disclosed method. Further, applicant has defined the term “tobacco plant” as encompassing parts of the plant such as tobacco leaves (see above). Applicant argues that Murray et al reduces nicotine concentration in tobacco by a volume increasing (and therefore concentration reducing) “puffing” method. While this characterization appears to be correct, the end result still appears to read on applicant’s method as claimed.

Murray et al and Felton et al, again, both address the effect of glucose oxidase on plants. Murray et al teaches that insertion of the gene encoding glucose oxidase enhances plant resistance to insect attack. Insertion into tobacco is disclosed at column 8 (first paragraph). Felton et al disclose that an insect salivary enzyme, glucose oxidase, stimulates insect resistance in the plant, as well as increased hydrogen peroxide production (Fig. 4). While neither Murray et al nor Felton et al appear to recognize any effect on nicotine concentration in tobacco plants which are exposed to increased levels of glucose oxidase, it would appear that reduced nicotine production would necessarily occur, as well as the noted enhance insect resistance.

Thus it would have been *prima facie* obvious to the ordinary artisan at the time the invention was made to have applied glucose oxidase or hydrogen peroxide to tobacco plants

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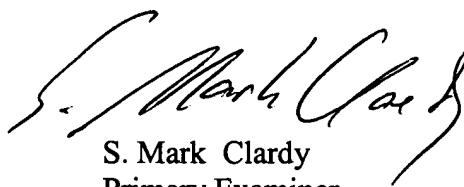
because the prior art teaches the application of these compounds to tobacco plants, and suggests their utility in reducing nicotine concentration.

No unobvious or unexpected results are noted; no claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Mark Clardy whose telephone number is 571-272-0611. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreenivasan Padmanabhan can be reached on 571-272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Mark Clardy  
Primary Examiner  
Art Unit 1617

May 9, 2006